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The effects of foreign direct investment on youth unemployment in the Southern African Development Community

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ABSTRACT

This paper examines the effect of foreign direct investment (FDI) on youth unemployment in the Southern African Development Community (SADC) region using panel data from the World Bank World Development Indicators for the period 1994–2017. Results from the Feasible Generalized Least Squares (FGLS-Parks) technique show that FDI has an insignificant effect on reducing youth unemployment in the SADC region. This could be because the type of FDI in the region is partly mergers and acquisitions, which has fewer jobs creating capacity compared to Greenfield investment. This suggests the need for governments in the region to pursue labour-absorbing FDI policies and also ensure that foreign investment inflows are channelled towards labour-intensive sectors that have high labour absorptive capacity such as horticulture and floriculture.

KEYWORDS

Foreign direct investment; youth unemployment; SADC; Feasible Generalized Least Squares Parks

1. Introduction

Youth unemployment has been on the rise in many countries in the world despite the efforts that have been made by different governments in order to improve the economic wellbeing of the youth, persons aged 15–24 years (United Nations 2008). Africa is among the continents that have faced high youth unemployment rate as one of the greatest development challenges (Anywanu 2013), and if not solved is expected to cause persistent poverty (Patel et al. 2020). Most African countries lack inclusive economic growth that contributes to the reduction youth unemployment (van Niekerk 2020). SADC member states are also faced by this development challenge and recognise youth employment as one of the major means of alleviating poverty and empowering people to be part of the economic, social and political processes (SADC 2013).

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SADC statistics show high youth unemployment and underemployment rates, especially among the youth in rural areas where agriculture and informal sector are the main sources of employment (SADC 2013; Machadu & Jena 2015; Epaphra & Mwakalasya 2017). There are several methods through which countries can create new jobs for the youth and others. Likewise, SADC has developed different guiding documents such as Article 5 of the SADC treaty 1992, the protocol on finance and investment, SADC employment and labour protocol, the SADC youth employment promotion policy and strategic plan, SADC youth employment strategies, and SADC regional labour migration action plan, to create jobs for the people in the region. The protocol on finance and investment which was developed in 2006, advocates for foreign direct investment (FDI) attraction as a way of creating new employment opportunities (Machadu & Jena 2015). This is not unique to the SADC countries. Javorcik (2013) states that policy makers in developing and developed countries strive to attract FDI to create new jobs for their citizens. Besides the direct benefits such as investment, employment and foreign exchange, FDI also benefits host countries through spillovers from productivity gain resulting from the diffusion of knowledge and technology from foreign investors to local firms and workers, lower prices and efficient allocation of resources (OECD 2002; Farole & Winkler 2014; Demena & van Bergeijk 2019). For instance, a study conducted among firms in Kenya, Tanzania, and Uganda shows that host economies and workers in foreign-owned firms benefited from increased productivity, transfer and spillover of management skills, infrastructural development, and access to foreign market (Moss et al. 2004; Demena & van Bergeijk 2019). However, FDI has also negative spillover effects such as competition for scarce skilled labour and crowding out of local firms because of technology intensity, among the others (Farole & Winkler 2014).

Studies (e.g. Fu & Balasubramanya 2005; Craigwell 2006; Haddad 2016) show that FDI is essential for job creation and reducing youth unemployment even though different modes of FDI yield different results. There are two types of FDIs – Greenfield investment and Merger and Acquisition (M&A) (UNCTAD 2009)¹ of which Greenfield investments outperform M&A. Job creation ability of FDI also depends on the intensity or level of FDI. Besides, the benefit of FDI may depend on market size, the time horizon of foreign capital and trade openness (Lederman et al. 2010). In their study in the SADC, Lederman et al. (2010) found that trade openness was more important than market size. However, they did not go further to analyse the impact of FDI on youth unemployment which remains a challenge despite having a large share of the continent's FDI inflows (Muradzikwa 2002; SADC 2003; Evans et al. 2018; Kapingura 2018). This, therefore, leaves an open question on the effects of FDI on youth unemployment in the SADC region.

Research on FDI and youth unemployment is deemed crucial in developing countries where youth unemployment is high and on the rise to guide policy formulation on achieving sustainable youth employment. The SADC region, in particular, is behind on such research. To the best of our knowledge, there is no study that has addressed the effect of FDI on youth unemployment in the SADC region. This study, therefore, bridges the

¹The Greenfield investment is when the foreign investor establishes a new venture in the host country that creates jobs and outputs while M&As involve the purchase of all or part of an existing enterprise or project in the host country by the foreign investor, as such the latter is unlikely to result in any substantial job creation (Muradzikwa 2002). However, these two forms may take other names. For example, Greenfield investment is also called 'Mortar and brick' investment (Nyamwange 2009) and M&As also take the name Brownfield investments as in Folawewo & Adeboje (2017).

knowledge gap in the literature on the causal relationship between FDI and youth unemployment in the SADC region. More specifically, the study examines the effect of FDI on youth unemployment using panel data from 1994–2017 and the Feasible Generalized Least Squares (FGLS-Parks) technique. There are six countries included in the study: Botswana, Democratic Republic of Congo (DRC), Eswatini (Swaziland), Madagascar, Malawi and Tanzania. This work contributes to the literatures in labour markets and FDI.

The rest of the paper is structured as follows. Section 2 presents an overview of the literature on FDI and youth unemployment in the SADC region in general and selected countries in particular. Section 3 presents the theoretical framework and empirical procedure; Section 4 describes the data used in the study. Section 5 presents and discusses the results, and section 6 draws conclusions.

2. FDI and youth unemployment in the SADC region

An investigation of the employment effects of FDI has been an area of great concern over the past years since among other reasons countries attract FDI to boost employment. In the SADC region, youth unemployment is high, while at the same time the region receives the largest percentage share of FDI inflow followed by West Africa, North Africa, Central Africa, and East Africa respectively (Evans et al. 2018). The sectoral distribution of FDI in Southern Africa shows significant increases in services (tourism and telecommunications) and mining and quarrying where high-skilled labour is required (Muradzikwa 2002). According to Booyens (2020) youth employment in the tourism sector in South Africa is very low as youth do not qualify due to their low level or mismatching skill. Agriculture sector has a huge potential in alleviating youth unemployment in Africa as it is the major economic activity and also requires low level of skill. According to Wall et al. (2018), for the period from 2003–2014, agriculture sector employed a larger number of youth followed by the service and the manufacturing sectors, respectively, even though subsistence nature of agricultural sector made it to attract less FDI compared to the manufacturing and the service sector. A reduction in youth unemployment is necessary for inclusive growth as youth employment is critical in building a more inclusive economy (van Niekerk 2020). Goldin et al. (2015) also reveals that the agriculture sector is a dominant source of youth employment in Sub-Saharan Africa (SSA). This, therefore, implies that channelling FDI to the agriculture sector has a high potential to reduce youth unemployment. Figure 1 depicts the trend in FDI inflows and the youth unemployment rate in the selected countries in the SADC region. Youth unemployment is generally high for most of the sample countries with the highest figure for Botswana and Eswatini.

The link between FDI and employment can be explained through three channels (Jude & Silaghi 2016). The first channel is when FDI directly create new jobs in host countries and the impact is higher when foreign investments are channelled towards labour-intensive sectors. The second channel of the employment effects of FDI can be explained through competition and spillover effects where competition drives out domestic firms making the foreign firms demand more labour after winning the great market share hence, in turn, creating more employment. As a third channel, FDI can create less employment through foreign firms with higher productivity-enhancing technologies that require less labour per output as it is replaced by advanced technologies of the firm hence being

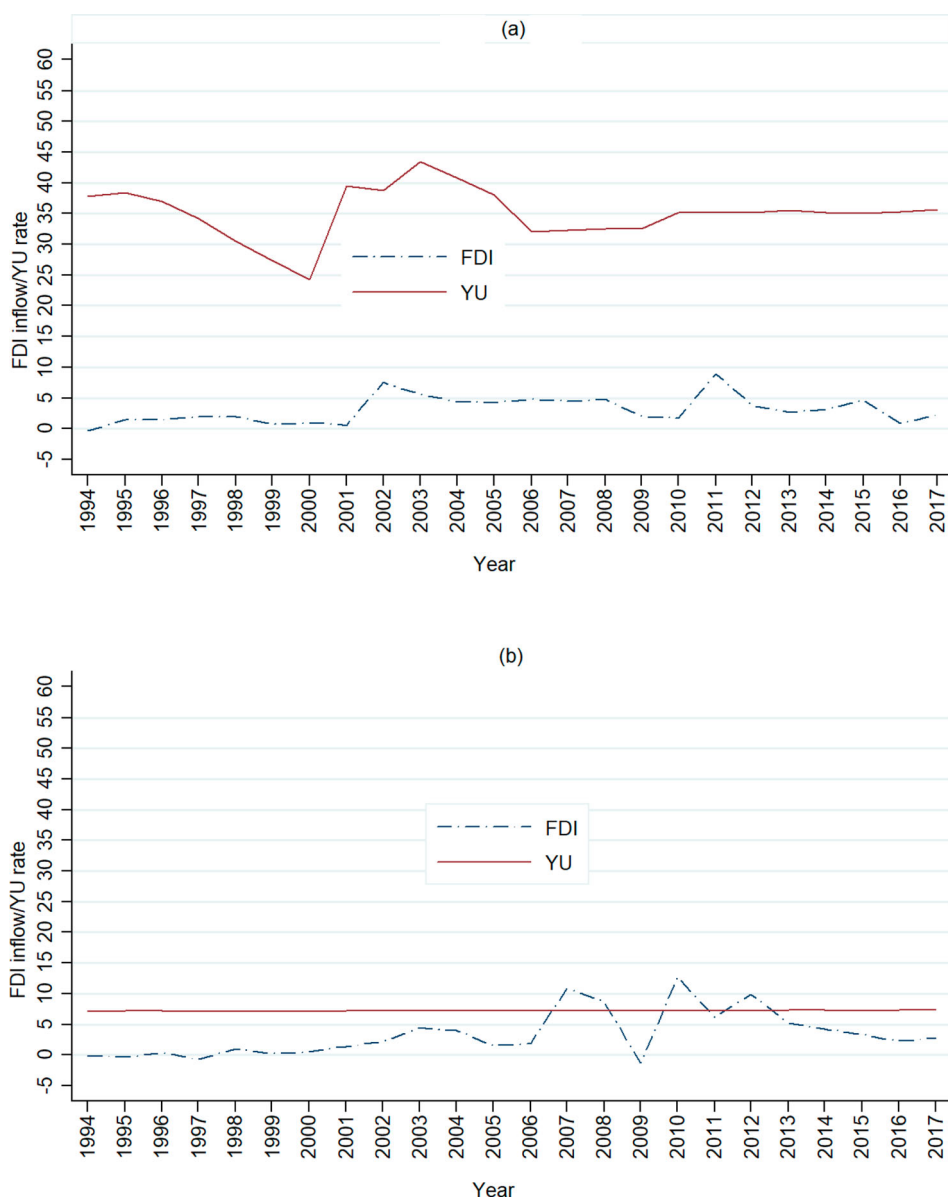


Figure 1. Trends in net FDI inflows (% of GDP) and youth unemployment rates (YU) in the six SADC countries ((a) Botswana, (b) DRC, (c) Eswatini, (d) Madagascar, (e) Malawi and (f) Tanzania).

capable of employing few people than the domestic firms. Therefore, the three channels make it clear that the effect of FDI on employment is ambiguous and which effect stands out depends on the strengths of these channels.

Empirical studies on the effects of FDI on youth unemployment in host countries present mixed results. Most studies found a negative significant relationship between FDI inflows and youth unemployment (e.g. Choudhry et al. 2012; Anyanwu 2013; Mayom 2015; Ebaidalla 2016; Sam 2016 Sever & İğdeli 2018), while others found a lack

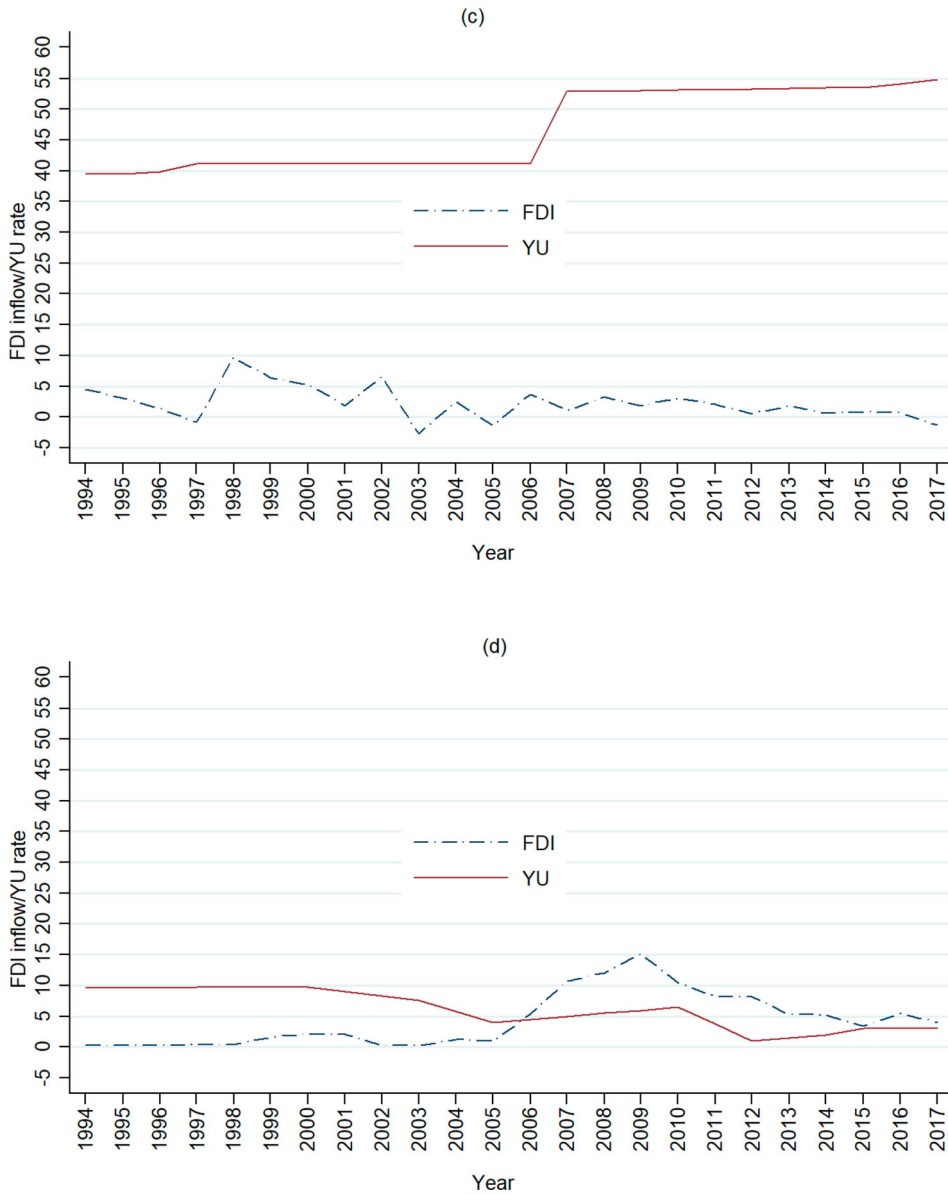


Figure 1 *Continued*

of significant impact of FDI on youth unemployment (e.g. Anyanwu 2013; Capolare & Gil-Alaña 2014).

Choudhry et al. (2012) assessed the impact of the financial crisis on the youth unemployment rate from 1980 to 2005. Employing fixed effects panel estimation on a large panel of countries (about 70) around the world; they found that FDI had a negative and significant effect on youth unemployment. Anyanwu (2013) investigated the characteristics and determinants of youth employment in Africa using data over the period 1991–2009. Using the FGLS, he found a positive and significant effect of FDI on youth

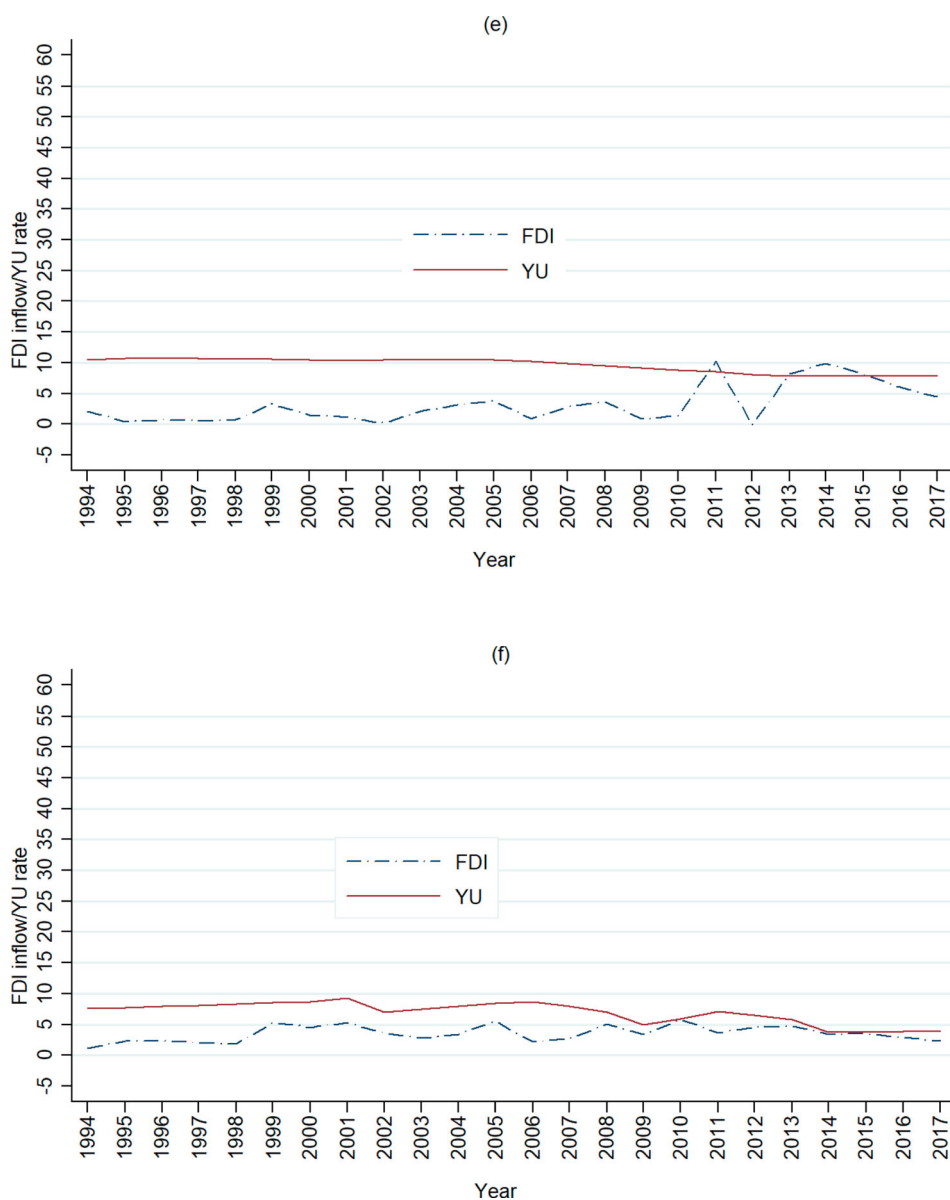


Figure 1 *Continued*

employment in SSA but insignificant effects in North Africa and the rest of the continent, and attributed the insignificant relationship to the FDI inflows in Africa that are mostly channelled to capital intensive sectors, such as the natural resource sectors, with little local employment creation effect. Capolare & Gil-Alaña (2014) assessed the persistent and macroeconomic determinants of youth unemployment in Europe. Employing the autoregressive, fractional integration and fractional cointegration models, they found that FDI had insignificant impact on youth unemployment. Sam (2015) modelled the economic determinants of youth unemployment in Kenya using data from 1979 to

2012 and autoregressive distributed lag model (ARDL) and found that FDI reduced youth unemployment in Kenya even though the size of the effect was very small.

Mayom (2015) investigated the impact of FDI on labour market measures in SSA using panel data of 48 countries from 1991 to 2009. Using OLS, he found that FDI had a positive significant impact on youth employment ratio and also that FDI had an insignificant impact on youth unemployment rate in SSA and attributed the insignificant relationship to the mismeasurement that is built in the measure of the unemployment rate. Ebaidalla (2016) investigated the causes of youth unemployment in 30 SSA countries using panel data from 1991 to 2012 and found that foreign direct investment had a negative and significant effect on youth unemployment. Sever & İğdeli (2018) investigated the determining factors of youth unemployment in Turkey using panel data from 1988 to 2016. Using the Vector Error Correction Model (VECM), they found that FDI had a negative impact on youth unemployment in the long run in Turkey. Therefore, from the literature presented above, it can be concluded that there is mixed evidence on the effect of FDI on youth unemployment.

3. Theoretical Framework and empirical procedure

3.1. Theoretical framework

Following Milner & Wright (1998), Greenaway et al. (1999), Stehrer (2004), Nickell (1987) and Jude & Silaghi (2016), the effect of FDI on youth unemployment can be modelled based on the labour demand function derived from the Cobb–Douglas production function as follows:

$$Y_{it} = A^\gamma K_{it}^\alpha L_{it}^\beta \quad (1)$$

Where Y_{it} represents the real output for country i at time t , K is the capital stock, L is the number of employees (labour), A is technical progress, α and β represent the elasticity of output with respect to capital and labour respectively, and the coefficient γ allows factors to change the efficiency of A the production process (Greenaway et al. 1999). Profit maximisation implies that optimal capital is chosen such that the cost of capital (C) equals capital's marginal revenue product and the wage (W) equals labour's marginal revenue product (Waldfkirch et al. 2009). Following Jude & Silaghi (2016), we eliminate the capital stock from Equation (1) as its estimation at aggregate level is problematic. Elimination of the capital stock from Equation (1) leads to

$$Y_{it} = A^\gamma \left(\frac{\alpha}{\beta} N_{it} \frac{W_{it}}{C_{it}} \right)^\alpha L_{it}^\beta \quad (2)$$

N represents the employment level. Transforming Equation (2) by taking logarithms on both sides and rearranging the terms gives the labour demand function as follows:

$$\ln L_{it} = \vartheta_0 + \vartheta_1 \ln Y_{it} + \vartheta_2 \ln \frac{W_i}{C_i} \quad (3)$$

Where $\vartheta_0 = -(\gamma \ln A + \alpha \ln \alpha - \alpha \ln \beta)/(\alpha + \beta)$, $\vartheta_1 = 1/(\alpha + \beta)$ and $\vartheta_2 = -\alpha/(\alpha + \beta)$.

Following Borensztein et al. (1998), Greenaway et al. (1999) and Jude & Silaghi (2016), FDI influences the technical efficiency parameter and the technical efficiency of production increases over time due to technology transfer through FDI. Therefore, focusing on FDI-induced technological change; technical efficiency can be modelled as a function of FDI as follows:

$$A_{it} = e^{\delta_0 T_i} FDI_{it}^{\delta_1} \quad (4)$$

where FDI is the stock of FDI in country i at time t , T is the time trend and $\delta_0, \delta_1 > 0$. Taking the logarithm of A_{it} and substituting in the labour demand Equation (3), gives us the relationship between labour (employment) and FDI as follows:

$$\ln L_{it} = \lambda + \emptyset_1 \ln Y_{it} + \emptyset_2 \ln \frac{W_i}{C_i} + \emptyset_3 \ln FDI_{it} + Q_4 T \quad (5)$$

where $\lambda = -(\alpha \ln \alpha - \alpha \ln \beta)/(\alpha + \beta)$; $\emptyset_3 = \mu \delta_1$; $\emptyset_4 = \mu \delta_0$; $\mu = -\gamma/(\alpha + \beta)$.

Therefore, taking unemployment as the opposite of employment, Equation (5) can represent the relationship between unemployment and FDI if the right hand side of Equation (5) is presented with the opposite signs.

3.2. Empirical procedure

To determine the impact of FDI on youth unemployment in the SADC region, the study used panel data techniques and followed Folawewo & Adeboje (2017) and Jude & Silaghi (2016) in specifying the empirical model:

$$YU_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 GDP_{it} + \beta_3 INF_{it} + \beta_4 DI_{it} + \beta_5 DEBT_{it} + \beta_6 POP_{it} + \beta_7 EXP_{it} + \beta_8 IMP_{it} + \beta_9 GAP_{it} + \beta_{10} MEM_{it} + v_{it} \quad (6)$$

where β_0 is the intercept, β_1 to β_{10} are coefficients of FDI , GDP , INF , DI , $DEBT$, POP , EXP , IMP , GAP , and MEM respectively. YU is youth unemployment, FDI is Foreign Direct Investment, GDP is GDP growth, INF is inflation rate, DI is domestic investment, $DEBT$ is external debt, EXP is exports, IMP is imports, GAP is technology gap, MEM is SADC membership, v_{it} ($\mu_{it} + \varepsilon_i$) is the error term that includes errors in the youth unemployment measure μ_{it} (the combined time series and cross section error component) $+\varepsilon_i$ (the cross section or individual-specific component), i is individual countries in the SADC region and t is the year from 1994 to 2017.

As mentioned in Section 2, empirical literature on the employment effects of FDI have used different estimation techniques that include static panels (fixed effects and random effects techniques) and the fully modified ordinary least squares (e.g. Folawewo & Adeboje 2017), fixed effects panel estimation (e.g. Choudhry et al. 2012), feasible generalised least squares (e.g. Anywanu 2013), generalised method of moments (e.g. Ebaidalla 2016; Jude & Silaghi 2016), autoregressive fraction integration and fraction cointegration models (e.g. Capolare & Gil-Alaña 2014), and FGLS-Parks and panel corrected standard error (e.g. Reed & Ye 2011; Moundigbaye et al. 2018). The decision to apply any of these procedures depends on the nature of the data that one is working with.

For example, static panel models produce inconsistent estimates in the presence of endogeneity (Mayom 2015), and the correlation of the unobserved country fixed effects

with the error term (Ebaidalla 2016). Fully modified ordinary least squares (FMOLS) and the autoregressive models ((such as panel vector autoregressive (VAR) models, vector error correction (VEC)) and autoregressive distributed lag (ARDL) models) are used when cointegration exists and the variables are stationary in levels or/and at first difference, whereas the GMM is used when the number of cross-sectional units (N) is greater than the number of time periods (T). The FGLS-Parks are used when $T > N$ and it corrects for non-stationarity, heteroscedasticity and autocorrelation and gives efficient coefficients estimates but it is a poor estimator for hypothesis testing compared to the panel correlated standard errors (PCSEs) (Reed & Webb 2010; Reed & Ye 2011; Moundigbaye et al. 2018). Based on the nature of our data, six cross-sectional units and 24 time periods, we chose to use FGLS-Parks to estimate the coefficients and PCSE to get robust standard errors.

To prevent spurious results, panel unit root tests, autocorrelation and heteroscedasticity tests were carried out. Heteroscedasticity and autocorrelation tests revealed the presence of heteroscedasticity and autocorrelation in the panels. As shown in Appendix Table A1, some variables were stationary while others were non-stationary (became stationary after differencing). The presence of panel autocorrelation, heteroscedasticity and nonstationary of the series mean that the GMM, FGLS and the PCSE can be employed. However, GMM cannot be used as T is larger than N , hence we used FGLS-Parks and PCSE to examine the effect of FDI on youth unemployment in the SADC region. The FGLS-Parks controls for panel autocorrelation, heteroscedasticity and nonstationary of the series (Stocks & Watson 2003; Nowak-Lehmann et al. 2006) and cross-sectional dependence and provides efficient estimators when T/N is greater than 1.50 (Moundigbaye et al. 2018; Reed & Ye 2011) and the PCSE estimator was employed because it is the best estimator when dealing with hypothesis testing (Moundigbaye et al. 2018). The static panels are employed because of their ability to handle the systematic tendency of individual-specific components to be higher for some units than others (Folawewo & Adeboje 2017).

4. Data

We use time-series-cross-section data obtained from the World Bank World Development Indicators (WDI) for the period from 1994 to 2017. The selection of the SADC countries for the study was based on the completeness of the data. As it was already stated, the countries included in the study are Botswana, Democratic Republic of Congo (DRC), Eswatini (Swaziland), Madagascar, Malawi, and Tanzania. The variables included in the analysis are selected based on theoretical and empirical literature on the employment effects of FDI. In this regard, youth unemployment is used as the dependent variable while FDI, GDP growth, inflation, domestic investment, external debt, population growth, exports, imports, technology gap, and SADC membership are used as independent variables. The description of these variables and their descriptive statistics are presented in Table 1. Definitions and *a priori* expectations of the variables are presented below.

Youth unemployment occurs when a youth is able and willing to work but is currently without work. Since youth unemployment is part of the overall unemployment and under-employment that afflicts SADC (SADC 2013), the macroeconomic factors affecting

Table 1. Descriptive statistics of the regression variables, 1994–2017.

Variable	Description	Mean (<i>n</i> = 144)	Std. Dev.
Foreign Direct Investment	Net inflows (% of GDP)	3.28	3.13
GDP growth	GDP growth (annual %)	3.96	3.92
Inflation	Consumer Prices (annual %)	193.01	1980.47
Domestic investment	Gross Capital Formation (% of GDP)	19.94	8.20
External debt	External Debt Stocks (% of GNI)	56.89	60.31
Population growth	Population Growth (annual %)	2.51	0.70
Exports	Exports of goods and services (% of GDP)	34.61	16.37
Imports	Imports of goods and services (% of GDP)	41.50	16.57
Technology Gap	The gap between the US GDP per capita and host country GDP per capita divided by host country GDP per capita	76.38	51.77
SADC Membership	Dummy Variable taking the value of 1 for every year a country has been a member of SADC and zero otherwise	0.90	0.31
Youth unemployment	Youth total (% of total labour force ages 15–24) modelled ILO estimates	18.58	16.53

Source: Author's calculations.

unemployment were also considered as factors affecting youth unemployment. A high rate of economic growth (GDP growth) reduces unemployment and this comes from Okun's law which states that there is a negative relationship between the unemployment rate and economic growth (Malley & Molana 2007). The study, therefore, assumed a negative relationship between GDP and youth unemployment. Inflation is another important macroeconomic factor that affects unemployment and this relationship is explained by the Phillips Curve. Philips (1958) showed a negative relationship between these two variables. This study, therefore, also assumes a negative relationship between youth unemployment and inflation. FDI is also a macroeconomic variable that affects employment. FDI is defined as direct investment made by non-resident investors in the reporting country. The study assumes that FDI has a negative relationship with youth unemployment since according to Nunnenkamp et al. (2007) there is a significant and negative correlation between FDI and unemployment.

Population growth refers to the annual percentage growth of total persons of the country. Population growth has been found to have a positive impact on unemployment (Folawewo & Adebajo 2017). This study also assumed a negative relationship between population growth and youth unemployment. Furthermore, literature presents other factors as external debt and domestic investment. External debt is a part of the total debt in a country that is owed to foreign citizens, firms, and institutions. The debt includes money owed to private commercial banks, other governments, or international financial institutions such as the IMF and World Bank. Maqbool et al. (2013) suggested that external debt has a strong impact on the unemployment rate. Hence this study assumes that external debt has a negative impact on youth unemployment. We hypothesise that youth unemployment will reduce with an increase in domestic investment following Oniere et al. (2015). Following Jude & Silaghi (2016), our study includes exports, imports, technology gap and SADC membership as other independent variables with the assumption that imports and technology gap leads to an increase in youth unemployment, whereas exports and SADC membership lead to a decrease in youth unemployment. Table 1 presents the descriptive statistics of the variables used in this study.

5. Results and discussion

Table 2 presents the results of the estimates of the three models – the fixed effects, the FGLS-Parks, and the PCSE. The static panels are employed because of their ability to handle the systematic tendency of individual-specific components are higher for some units than others (Folawewo & Adeboje 2017). Consequently, the fixed effects model was chosen after conducting the Hausman test ($\chi^2 = 98.59$, $p = 0.00$). The results of the fixed effect model show that all the variables are insignificant except the variable representing exports. Because of the few observations ($n = 144$), the coefficients of the fixed effect model are not efficient (Clark & Linzer 2015). According to Clark & Linzer (2015), random effects estimators are more efficient than the fixed effects estimators in very small data sets (fewer than 200 total observations). Therefore, we use estimates of FGLS-Parks to interpret the results. As indicated before, the FGLS-Parks controls for panel autocorrelation, heteroscedasticity and nonstationary of the series (Stocks & Watson 2003; Nowak-Lehmann et al. 2006) and cross-sectional dependence; and provides efficient estimators when T/N is greater than 1.50 (Moundigbaye et al. 2018; Reed & Ye 2011) and the PCSE estimator was employed because it is the best estimator when dealing with hypothesis testing (Moundigbaye et al. 2018).

The results in Table 2 show that FDI has a negative and insignificant effect on youth unemployment in the SADC region. Capolare & Gil-Alaña (2014) and Anyanwu (2013) also found that the impact of FDI on youth unemployment was insignificant in Europe

Table 2. Estimation results of the factors affecting youth unemployment in SADC.

	Fixed effect estimates	FGLS-Parks regression estimates	Prais-Winsten regression (PCSE) estimates
Foreign Direct Investment	0.10 (0.10)	−0.01 (0.03)	−0.06 (0.07)
GDP growth	0.11 (0.08)	−0.07*** (0.03)	−0.10** (0.05)
Inflation	−0.00 (0.00)	−0.00 (0.00)	−0.00 (0.00)
Domestic Investment	−0.03 (0.07)	−0.04 (0.03)	−0.12** (0.05)
External debt	0.01 (0.01)	−0.01*** (0.00)	−0.02*** (0.01)
Population growth	0.17 (0.78)	−2.12*** (0.48)	−2.43*** (0.87)
Exports	−0.22*** (0.06)	0.02 (0.04)	0.03 (0.06)
Imports	−0.04 (0.06)	0.02 (0.03)	0.07 (0.06)
Technology Gap	−0.00 (0.03)	−0.18*** (0.02)	−0.22*** (0.02)
SADC Membership	−2.33 (1.61)	−0.49 (0.91)	−0.14 (1.17)
Constant	29.24*** (4.38)	36.42*** (2.72)	41.66*** (3.88)
<i>N</i>	144	144	144
rho (fraction of variance due to u_i)	0.98		0.84
$F(10,128)$	5.63		
corr(u_i, X_b)	−0.90		
Wald $\chi^2(10)$		123.70***	140.71***

Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

and Africa, respectively. As the type of FDI, sector characteristic features and the nature of production technology matters to appreciate the effects of FDI in an economy (Folawewo & Adeboje 2017), the insignificance of FDI in this study could be attributed to the FDI that flows into the region which is mostly M&As rather than Greenfield investments (Muradzikwa 2002; SADC 2003). Greenfield investments have significant employment effects when compared to M&As investments and hence we suggest SADC attracts more Greenfield investment in relevant sectors. Besides the type of FDI, increasing the amount and performance of FDI is very important. Currently, the amount and performance of FDI in the countries used in this study are affected by different country-specific constraints that affect FDI inflow and performance (Societe Generale 2020). In Botswana, FDI is affected by mainly by high production costs and lack of skilled labour while corruption, lengthy administrative procedures, high administrative fees and conflict are the main factors in Democratic Republic of Congo. In Eswantini, FDI is affected by lack of access to land and market distortion by state owned enterprises in Eswatini while in Madagascar poor infrastructure and limited access to finance are the main ones. In Malawi, factors that affect FDI include multiple and time-consuming administrative procedures, lack of skilled labour, high transportation costs, unreliable supply of water and electricity, inefficient public institutions and difficulties in accessing credit. FDI in The Republic of Tanzania is affected by low levels of industrial development, environmental concerns, lack of transparency and poor compliance with legislation.

The result of this study also shows that GDP growth has a negative and significant effect on youth unemployment in the SADC region. This finding is consistent with Okun's law and corroborates the findings of Anyanwu (2013) who found that GDP growth has a positive and significant impact on youth employment in SSA. Hernanz & Jimeno (2017), Ebaidalla (2016), Banerji et al. (2014), Capolare & Gil-Alaña (2014) and Choudhry et al. (2012) also found that GDP growth has a negative relationship with youth unemployment in the European Union (EU), Organisation of Islamic Cooperation (OIC) member states, advanced Europe, Europe, and 70 countries around the world, respectively. This implies that policies towards long-run growth are expected to impact youth employment in the region.

The results also show that population growth has a negative significant effect on youth unemployment implying that population growth increases youth employment which is unexpected result. One of a possible explanation for this result could be increase in urbanisation. According to Anyanwu (2013), the youth in urban areas have access to more economic opportunities than in rural areas as urban labour markets offer a wide variety of occupations, from manufacturing to clerical activities and hence living in the urban areas has been associated with increasing access to labour markets and formal employment.

6. Conclusions and Recommendations

This study was conducted to establish the effects of foreign direct investment on youth unemployment in the SADC region using World Bank WDI data for the period 1994–2017 and FGLS-Parks and the PCSE estimation techniques.

The study reveals that FDI has insignificant effect on youth unemployment in the SADC region. This could be due to several factors. The first one is the type of FDI in

the region which is partly M&As, which has less job creation capacity compared to Greenfield investment. To reduce youth unemployment, governments in the region should pursue a labour absorbing FDI policy that attracts the Greenfield investment and also channel the investments towards agriculture sector as it has capacity to absorb more labour compared to other sectors. However, the agriculture sector requires transformation from subsistence to commercial and knowledge-based economy to make it lucrative to FDI. Besides, countries should improve the business environment by alleviating country-specific constraints. Therefore, the region needs to integrate different policies such agriculture transformation, ease of doing business and education policies so that they can be able to attract more FDI to alleviate youth unemployment.

7. Declaration of interest statement

No potential conflict of interest.

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Appendix

Table A1. Panel Unit Root tests

	Tests assuming common unit root process		Tests assuming individual unit root process		
	LLC <i>t</i> -stat statistic	Breitung <i>t</i> -stat statistic	IPS W-statistic	ADF-Fisher Chi ² statistic	PP-Fisher Chi ² Statistic
Foreign direct investment	−6.79 I(1)	−2.93 I(0)	−4.72 I(0)	11.20 I(0)	11.20 I(0)
GDP growth	−2.56 I(0)	−3.59 I(0)	−5.49 I(0)	16.42 I(0)	16.42 I(0)
Inflation	−5.29 I(5)	−1.95 I(1)	−5.12 I(0)	18.98 I(0)	18.98 I(0)
Domestic investment	−6.89 I(1)	−1.82 I(0)	−2.85 I(0)	2.08 I(0)	2.08 I(0)
External debt	−1.95 I(0)	−5.17 I(0)	−2.36 I(0)	2.34 I(0)	2.34 I(0)
Population growth	−8.65 I(0)	−3.00 I(2)	−3.36 I(0)	11.52 I(0)	11.52 I(0)
Exports	−3.12 I(0)	−1.90 I(0)	−2.76 I(0)	16.45 I(1)	16.45 I(0)
Imports	−5.67 I(1)	−6.19 I(1)	−2.42 I(0)	2.57 I(0)	2.57 I(0)
Technology Gap	−3.44 I(0)	−2.75 I(1)	−4.08 I(1)	10.39 I(1)	10.39 I(1)
SADC Membership	−5.45 I(4)	−4.58 I(1)	*	3.84 I(1)	3.84 I(1)
Youth unemployment	−1.83 I(0)	−3.06 I(1)	−2.21 I(0)	11.30 I(1)	11.31 I(1)

Note: All results are at 5% level of significance and * means the test statistic was not computed due to normality error.